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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,610	08/25/2003	Qinbai Fan	GTI-1429-CIP	2842

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EXAMINER
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MERCADO, JULIAN A

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 09/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/647,610	<b>Applicant(s)</b> FAN ET AL.	
	<b>Examiner</b> Julian Mercado	<b>Art Unit</b> 1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Remarks***

This Office action is responsive to applicant's amendment filed August 24, 2006.

Claims 1-17 are pending.

This Office action presents a new ground of rejection and is therefore made NON-FINAL.

### ***Terminal Disclaimer***

The terminal disclaimer filed on August 24, 2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Pat. 6,723,462 B2 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Accordingly, the rejection of claims 1-17 on the ground of nonstatutory obviousness-type double patenting over claims 1-15 of U.S. Patent No. 6,723,462 B2 has been obviated.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with

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which it is most nearly connected, to make and/or use the invention. The claimed “zero amount of nitrogen” appears to be drawn to an *absence* of nitrogen insofar as no nitrogen is added to the alloy mixture. The specification is not found enabling for an austenitic alloy having no *endogenous* nitrogen. For the reasons not yet discussed, it is the position of the examiner that nitrogen is intrinsically present at a non-zero amount in austenitic steel alloys.

***Claim Rejections - 35 USC § 102 and 103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8, 10 and 12-17 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hornung et al. (U.S. Pat. 6,300,001 B1).

Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hornung et al. in view of Koncar et al. (U.S. Pat. 5,942,347).

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The rejection(s) based on Hornung et al. either singly or in combination with Koncar et al. is applied towards the present claims for the reasons set forth in the prior Office action sent on February 21, 2006.

In the Office action sent on August 9, 2006, the examiner conceded with applicant's assertion that Hornung et al.'s disclosure of 0.02 wt. %, even when rounded to the nearest whole number, does not teach or suggest the claimed "zero amount of nitrogen." Upon further review of applicant's disclosure, however, the claimed "zero amount of nitrogen" appears to be drawn to an *absence* of nitrogen insofar as no nitrogen is *added* to the alloy mixture, as follows:

Nitrogen is conventionally employed in austenitic alloys as a means for enhancing strength (at the expense of formability) and as a means for preventing corrosion and pitting. Thus, it is indeed surprising and unexpected that the bi-polar separator plates of this invention exhibit superior resistance to corrosion and pitting in the acid reducing environment of the polymer electrolyte membrane fuel cell stack in spite of the absence of nitrogen in the alloy. In addition, the absence of nitrogen in the alloy enhances the formability of the alloy.  
(specification on page 8)

Hornung et al. does not have a positive addition step of nitrogen, thus, insofar as adding nitrogen as "conventionally employed in austenitic alloys as a means for enhancing strength", Hornung et al. does not add nitrogen and therefore teaches or at least suggests a zero amount of (added) nitrogen.

In prior Office actions, the claims were misinterpreted as having a zero amount of nitrogen by inherent composition. In re-applying this rejection, the examiner notes that the disclosure is silent on the claimed austenitic alloy having a zero amount of nitrogen *in the final compound*. Furthermore, it is the examiner's position that nitrogen is indeed inherently present in steel alloys, particularly austenitic steel alloys, at least at a non-zero amount. See, for example, U.S. Pat. 5,021,215 to Sawaragi et al. in col. 5 line 8 et seq., which discloses that "[u]sually nitrogen is contained in an amount of 250-400 ppm for this type of steel. See also U.S.

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Pat 6,440,236 B1 to Hiramatsu et al. which similarly teaches *not* adding nitrogen in col. 6 line 8 et seq. while also acknowledging the presence of nitrogen desirably held to a predetermined amount:

N (nitrogen) is an austenite-forming element and is also known as an effective element for hardening austenite phase and martensite phase. Positive addition of N has therefore generally been considered advantageous for achieving high strength in stainless steels. In this invention, however, it was found that, owing to the adoption of Ti addition to be explained hereinafter, addition of N makes it difficult to obtain excellent fatigue property... it was found preferable from the viewpoint of obtaining the fatigue property desired of an ultra-high strength steel, **not to add N but rather to hold N content to a low level of not more than 0.02 mass %**.  
(emphasis added)

Note that in Hiramatsu et al., the nitrogen level is held to not more than 0.02 mass % which is the same amount in Hornung et al.

Applicant is invited to submit evidence that the presently claimed austenitic alloy has a zero, i.e. 0.00 % of nitrogen by weight of the alloy.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian Mercado whose telephone number is (571) 272-1289. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

A handwritten signature in black ink, appearing to be "jam" with a stylized flourish.A handwritten signature in black ink, appearing to be "Patrick" with a stylized flourish.

PATRICK JOSEPHSON  
SUPERVISORY PATENT EXAMINER